

**Technical Information Exchange on Pyrolysis Oil: Potential for a renewable heating oil substitution  
fuel in New England – Agenda**

<b>Time</b>	<b>Pre-Conference Presentation and Discussion (Grenier Room) May 8, 2012; Manchester New Hampshire</b>
<b>7:30–8:00 p.m.</b>	<b>Pre-Registration for May 9–10, 2012 Conference</b>
<b>8:00–8:05 p.m.</b>	<b>Welcome and Introduction</b> <b>Elliott Levine, Technology Manager, U.S. Department of Energy (DOE)</b>
<b>8:05–9:00 p.m.</b>	<b>Presentation and Discussion on the Qualification of Alternative Fuels.</b> <b>Tom Butcher, Brookhaven National Laboratory</b> <b>John Huber, National Oilheat Research Alliance (NORA)</b> <ul style="list-style-type: none"><li>• The presenters will provide background information on the heating oil industry and their efforts at pyrolysis oil certification, integration and market considerations. A robust Q&amp;A and discussion session will follow to ensure that attendees to this optional session obtain a broadened perspective prior to the Technical Information Exchange on Pyrolysis Oil Workshop.</li></ul>
<b>9:00 p.m.</b>	<b>Pre-Conference Wrap-up and Announcements</b> <b>Elliott Levine, Technology Manager, DOE</b>

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<b>Time</b>	<b>May 9, 2012, Manchester, New Hampshire</b>
<b>7:30–8:30 a.m.</b>	<b>Registration and Continental Breakfast</b>
<b>8:30–8:40 a.m.</b>	<b>Welcome and Introduction</b> Steve Chalk, Deputy Assistant Secretary for Renewable Energy, DOE
<b>8:40–8:55 a.m.</b>	<b>The Department of Energy Perspective</b> Elliott Levine, Technology Manager, DOE
<b>8:55–9:45 a.m.</b>	<b>Plenary Presentations – Background and Context</b> <ul style="list-style-type: none"> <li>● Presentation: “Known Challenges Associated with the Production, Transportation, Storage and Usage of Pyrolysis Oil in Residential and Industrial Settings” Dr. Jani Lehto, Principal Scientist, VTT Technical Research Centre of Finland</li> <li>● Presentation: Integrated System Sensitivities and Perspective "A qualitative discussion on conversion, stabilization, and upgrading versus infrastructure compatibility and retrofit requirements" Jonathan Male, Pacific Northwest National Laboratory</li> </ul>
<b>9:45–9:50 a.m.</b>	<b>Framing and Instructions for Information Exchange</b> ( <i>Chris Clark, Energetics</i> ) <ul style="list-style-type: none"> <li>● Meeting Guidelines – Chris Clark, Energetics Incorporated</li> </ul>
<b>9:50–10:00 a.m.</b>	<b>Break</b>
<b>10:00 a.m. – 12:00 p.m.</b>	<b>Facilitated Discussion on Challenge # 1 – <i>Feedstock and Production—feedstock availability, homogeneity, process and conditioning enhancements and specifications.</i></b> During the discussion each participant will quantitatively rank each aspect of the challenge. <ul style="list-style-type: none"> <li>● <b>Introductions, Ground Rules and Agenda</b></li> <li>● <b>Facilitated Brainstorming – Group consensus and discussion</b> <ul style="list-style-type: none"> <li>● <i>Feedstock availability – physical and chemical composition (not logistics)</i></li> <li>● <i>Process enhancements and optimization – Increase oil yields, reactor design and technological challenges – modeling, reactor bed issue, etc.</i></li> <li>● <i>Emissions changes and impacts from production</i></li> </ul> </li> </ul>
<b>12:00–12:45 p.m.</b>	<b>Lunch</b> <ul style="list-style-type: none"> <li>● Presentation “Renewable Heating Fuel – A Commercial Perspective” – Steve Lupton, Envergent Technologies LLC</li> </ul>

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<p><b>12:45-2:45 p.m.</b></p>	<p><b>Facilitated Discussion on Challenge # 2 – <i>Logistics and Compatibility with Existing Infrastructure throughout supply chain—substitution and replacement issues in transport, storage and use.</i></b> During the discussion each participant will quantitatively rank each aspect of the challenge.</p> <ul style="list-style-type: none"> <li>• <b>Facilitated Brainstorming – Group consensus and discussion</b> <ul style="list-style-type: none"> <li>• <i>Location of production</i></li> <li>• <i>Transporting feedstocks and fuel</i></li> <li>• <i>Oil storage issues</i></li> <li>• <i>Infrastructure compatible fuels</i></li> <li>• <i>Aging of oil</i></li> <li>• <i>Are there low-cost options?</i></li> </ul> </li> </ul>
<p><b>2:45–4:45 p.m.</b></p>	<p><b>Facilitated Discussion on Challenge # 3 – <i>Operational Issues—what are the most significant barriers to overcome in each market segment.</i></b> During the discussion each participant will quantitatively rank each aspect of the challenge.</p> <ul style="list-style-type: none"> <li>• <b>Facilitated Brainstorming – Group consensus and discussion</b> <ul style="list-style-type: none"> <li>• <b><i>Pyrolysis oil conditioning: removal of organic oxygen, minimize coke formation, etc.: deoxygenated pyrolysis, catalytic pyrolysis, final product composition, etc.</i></b> <b><i>To effectively address:</i></b> <ul style="list-style-type: none"> <li>• <i>Compatibility</i></li> <li>• <i>Combustion</i></li> <li>• <i>Corrosivity</i></li> <li>• <i>Plugging</i></li> <li>• <i>Fouling</i></li> <li>• <i>Emissions and Ash</i></li> </ul> </li> <li>• <b><i>Fundamental application issues:</i></b> <ul style="list-style-type: none"> <li>• <i>Fuel and burner requirements – certification and specification</i></li> <li>• <i>CHP</i></li> <li>• <i>Market Penetration</i></li> </ul> </li> </ul> </li> </ul>
<p><b>4:45–5:00 p.m.</b></p>	<p><b>Day One Wrap-up and Discussion of Next Steps for Day Two</b></p>

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<b>Time</b>	<b>May 10, 2012, Manchester, New Hampshire</b>
<b>8:00–8:30 a.m.</b>	<b>Continental Breakfast</b>
<b>8:30–8:45 a.m.</b>	<b>Instructions for Small Group Work</b>
<b>8:45–11:45am</b>	<p><b><u>Worksheet Exercise</u> – Technology Advancement Breakdown</b></p> <ul style="list-style-type: none"> <li>• <b>Small Group Work- Worksheet Completion on significant challenges—Where are we now in comparison to where we need to be to deploy pyrolysis oil?</b> Break out into smaller groups (2-3 people) by technology need and/or area to fill in worksheets establishing indicators of success and performance goals, as well as expected outcomes tied to the advancement of each technology advancement/solution.</li> </ul>
<b>11:45 a.m. – 12:00pm</b>	<p><b><u>Wrap-up</u></b></p> <ul style="list-style-type: none"> <li>• <b>Group Discussion on Missed Challenges other Concerns from Stakeholders</b></li> <li>• <b>Wrap-up and Next Steps</b></li> </ul>